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PATENT SPECIFICATION

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PROVISIONAL SPECIFICATION

Improvements in Submarine Cable Signalling Systems

In sea-earth cables, means are provided for attenuating the disturbances in the "earth circuit", due to dissimilarity between the two legs of the circuit, without attenuating the signals. The earth circuit comprises the earth-capacity C2, C1 of the main and sea-earth cores MC1, MC2, in series with the earth and with the two cores in parallel. Disturbances travelling round this circuit affect the instrument T on account of reflection at the earth connection E. To prevent this effect, coiled L1, L2, Fig.1, are so wound as to have zero inductance for signal currents but an effective inductance for currents in the earth circuit. These inductances co-operate with the natural capacities of the main and sea-earth cables to form a low pass filter which attenuates currents of signal frequency in the earth circuit. A single pair of linked coils may be used (Fig.3) to ensure that disturbances in the earth circuit shall not pass from the loaded to the un-loaded section of the cable. Different sections of the filter thus constructed may be differently dimensioned. The inductances near the sea-earth may have laminated Permalloy cores, while those near the shore may have cores of Permalloy dust. The earth-capacities of the main and sea-earth cores may be increased, to give the filter the required dimensions, by the addition of an earthed condenser C, Fig.4, tapped off a branch comprising inductances l1, l11. Further condensers C1, C11 are added if DC signalling is to be provided for. The condenser C may be connected in series with an inductance, or replaced by an impedance network designed to attenuate some frequencies more than others. In another arrangement a layer of magnetic material is wound over the two cores together and either insulated from the sea or covered with jute.

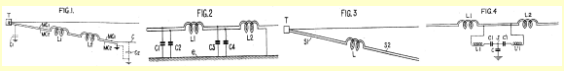

Figure 1 Figure 2 Figure 3 Figure 4